

PATENT SPECIFICATION

995,314

DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Improvements in or relating to Aerials.

I, YOSHIO SATO, of No. 2-536, 3-Chome, Kameari-Cho, Katsushika-Ku, Tokyo, Japan, a Japanese citizen, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an aerial for use on vehicles such as automobiles, motor-boats and any other small sized ships.

Various rod-shaped aerials which are of angular form and extensible have been conventionally used. However, these aerials may have some disadvantages when used on vehicles such as their size and the difficulty of making them impervious to moisture.

The object of the invention is to obviate or reduce the above disadvantages and difficulties and to provide an improved aerial which is impervious to water and moisture.

According to the present invention there is provided an aerial adapted to be secured at one end to a vehicle body, comprising a casing made of mouldable insulating material and, disposed within the casing, an inductor which consists of a magnetic core, an induction coil wound thereon, and a plurality of spacer elements made of elastic material interposed between the inductor and the casing, a plate surrounding the casing adjacent said end, and a metallic fixing means for securing the aerial to a vehicle body.

One embodiment of the invention will now be described more fully with reference to the accompanying drawings, in which:—

Fig. 1 is a perspective view of a short aerial according to the present invention;

[Price 4s. 6d.]

Fig. 2 is a sectional side view of Fig. 1, and

Fig. 3 is a sectional front view thereof.

Referring to Figs. 1, 2 and 3, an aerial comprises an inductor 4, consisting of an induction coil 3 wound on a magnetic core 2 of material such as ferrite and three spacer bands 5 made of elastic material fitted thereto, and is accommodated in a relatively short casing 1 made of synthetic resin or the like. An ornamental metal plate 6 having an attractive appearance and also serving as a shield is provided around the lower part of the casing 1. Around the foot of the plate 6 and beneath the bottom of the casing 1, a base member 7 made of elastic material such as rubber is provided which may be secured directly to the body of a vehicle, for example, an automobile, so that vibrations caused by the vehicle are damped and so that the plate 6 is insulated from the body of the vehicle.

A shielded supply wire 8 comprising a core conductor 8¹ covered with an insulator, a shielding member 8² and an outer insulator 8³ is inserted into a metallic fixing means 9 provided with a helical thread 9¹, to the top of which an insulating cap 10 is secured. The fixing means 9 is inserted into the casing 1 in such a manner that the core conductor 8¹ of the supply wire 8 extends through an aperture provided in the insulating cap 10 and contacts a connecting member 11 connected to one end of the coil 3 so that the core conductor 8¹ is insulated from the fixing means 9. The other end of the coil 3 is free and is not connected to anything. The shielding member 8² is connected to a suitable part of the fixing means 9.

In use the aerial is secured on a suitable part of the vehicle body by means of a nut

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cooperating with the thread 9¹ in such a manner that the base member 7 makes a close contact with the vehicle body and thus the aerial is made impervious to water and moisture.

Since the aerial according to the present invention has a construction as described above, a voltage induced in the coil 3 due to an incoming radio wave is supplied through the connecting part 11 to the core conductor 8¹, the other end of which may be connected to an input terminal of the receiver, so that the latter becomes operative, while the end of the shielding member 8² remote from the cap 10 is earthed at the receiver end so as to ensure shielding of the core conductor 8¹. In addition to electrical shielding action the plate 6, which is insulated by the base 7, also serves to improve induction in the core 2 largely by a capacitive coupling effect.

The short aerial according to this invention does not need to increase its length or height so that a higher voltage may be induced as is usual with rod antennae.

There is thus provided according to this invention an aerial which provides the same high voltage as can be obtained in a rod antenna, and which also has a streamline shape.

Furthermore, electrical noise is eliminated by suitable choice of natural resonance frequency and the inductor is completely covered by the casing.

The aerial according to the present invention is very impervious to water even when mounted on a motorboat.

Further, since the proposed aerial does not need moving parts such as the exten-

sible portions in known rod antenna, it provides practical advantages so that deterioration of its functioning due to damage and abrasion can be avoided. Also it can be used under any weather condition, and its manufacturing, handling and maintenance are very simplified.

WHAT WE CLAIM IS:—

1. An aerial adapted to be secured at one end to a vehicle body, comprising a casing made of mouldable insulating material and, disposed within the casing, an inductor which consists of a magnetic core, an induction coil wound thereon, and a plurality of spacer elements made of elastic material interposed between the inductor and the casing, a plate surrounding the casing adjacent said end, and a metallic fixing means for securing the aerial to a vehicle body.

2. An aerial as claimed in claim 1 including a shielded supply wire having a shielding member and a core conductor, said core conductor passing through an insulating cap of the fixing means, and being connected to the induction coil, and the shielding member being connected to the fixing means.

3. An aerial substantially as described with reference to the accompanying drawings.

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Fig 3

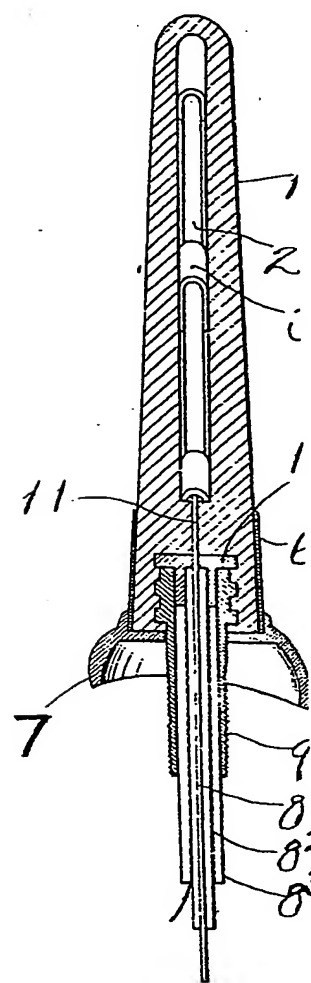
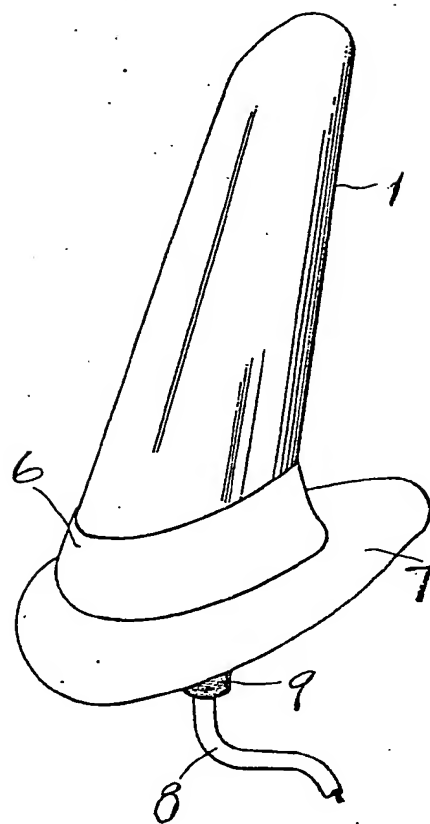


Fig 1



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COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of
the Original on a reduced scale
Sheets 1 & 2

Fig 3r

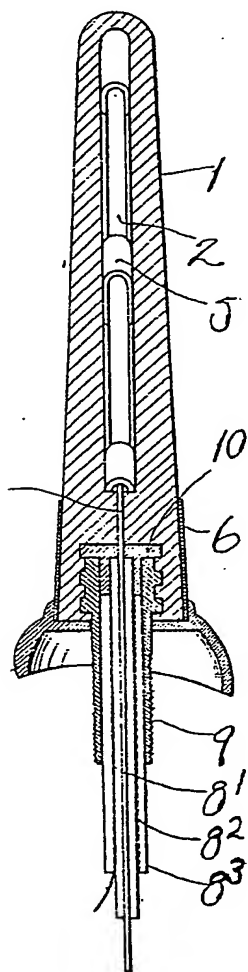
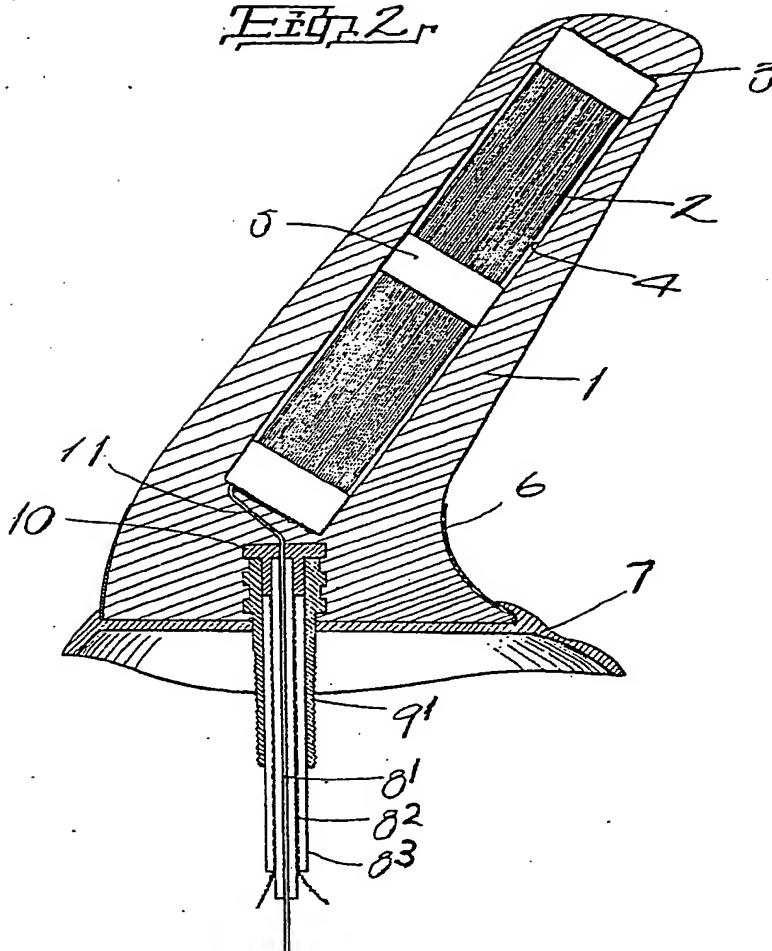
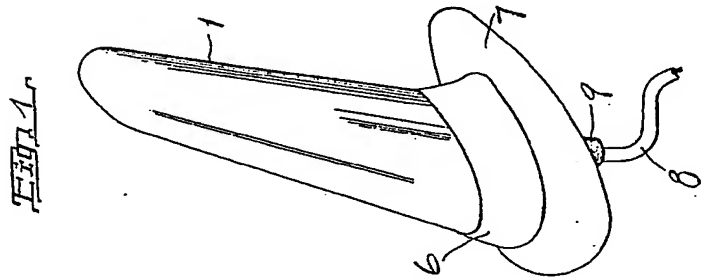
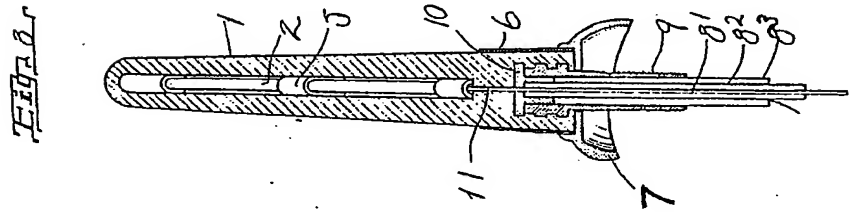
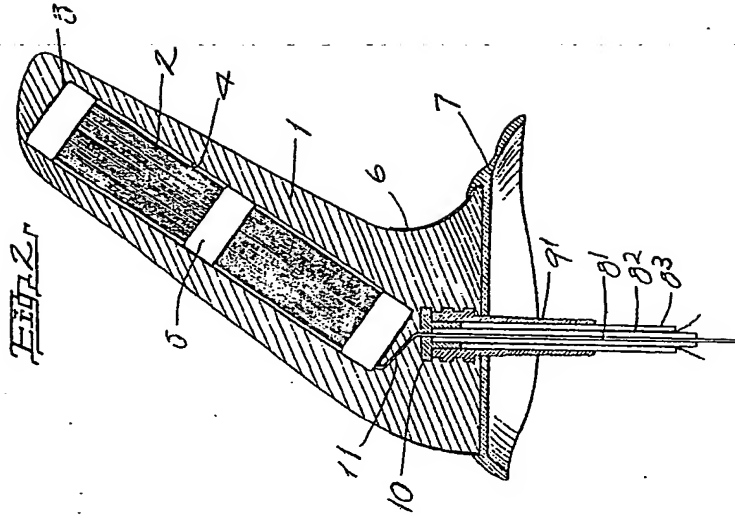


Fig 2r





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